



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,633	10/23/2003	Udo-Henning Stoewer	244375US41DIV	9161
22850	7590	12/29/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			BRYANT, DAVID P	
			ART UNIT	PAPER NUMBER
			3726	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/690,633	Applicant(s) STOEWER ET AL.	
	Examiner David P. Bryant	Art Unit 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2004.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-16 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7, and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ardell (U.S. Patent No. 3,139,786) in view of Wirtz et al. (DE 197 12 180 A1).

Claims 1 and 3: Ardell teaches a method of securing at least two workpieces 6, 7 (see Figure 3), comprising:

inserting a bolt shaft 1 through a bore hole 4, 5 formed in each of the at least two workpieces;

applying a sealant 8 to the at least two workpieces (see column 2, lines 23-25); and
engaging a locking collar 9 with the bolt shaft such that the locking collar is securely deformed in a locking manner thereby forcing the sealant to uniformly distribute and form a thin surface sealant layer on the bolt shaft (see Figure 4 and column 2, lines 50-54).

Ardell fails to teach forming a seal *and an adhesive bond* between the locking collar and the bolt shaft with the surface sealant layer.

Wirtz et al. teach a method of securing two workpieces 1, 2 using a bolt 3 and a locking collar 4. An adhesive sealant 9 is first applied to the bolt and locking collar, after which the locking collar is deformed into engagement with the bolt shaft, causing the adhesive to distribute

Art Unit: 3726

along the bolt shaft to form a surface sealant layer. See Figure 1. Upon fully curing, the sealant forms an adhesive bond between the components.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted a curable adhesive of the type taught by Wirtz et al., for the sealant of Ardell, to form an adhesive bond between the components.

Claim 2: As disclosed in column 2, lines 23-25 and 31-34, of Ardell, the applying step applies the sealant to the two workpieces before the inserting step, and sealant remaining in the aligned openings 4 and 5 gathers on the bolt shaft 1 as the bolt shaft is inserted therethrough.

Claim 4: As depicted in Figures 3, 6, and 7 of Ardell, the bolt shaft 1 has a locking portion including a plurality of grooves 3 around a surface of the bolt shaft and a plurality of peaks therebetween, at least some having a parallelogram shape and being disposed between the plurality of grooves (the parallelogram shape of the peaks being defined by the intersection of the grooves 3 and the axial relief grooves 10), and wherein the sealant 8 is uniformly distributed via the plurality of grooves around the surface of the bolt shaft when the engaging step engages the locking collar with the bolt shaft (see Figure 4 and column 2, lines 50-54).

Claim 5: As depicted in the embodiment of Figure 5 of Ardell, the plurality of grooves 3a extend in a spiral direction helically around the surface of the bolt shaft 1 (see column 2, lines 62-67).

Claim 7: As depicted in Figures 3, 6, and 7 of Ardell, the plurality of grooves include a plurality of first grooves 3 extending in a circumferential direction of the bolt shaft and a plurality of second grooves 10 extending in a direction parallel to the axial direction of the lockbolt such that the first and second grooves intersect with each other.

Art Unit: 3726

Claim 9: Ardell teaches all claimed steps, with the exception of a parallelogram shape in the form of a pyramid with a four-sided base.

The particular shape of the parallelogram is deemed to have been an obvious matter of choice in the absence of persuasive evidence that the particular shape is significant as compared with other parallelogram shapes. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Claims 10 and 14: As depicted in Figures 3, 6, and 7 of Ardell, the parallelogram shape is defined by the intersection of the grooves 3 and the axial relief grooves 10, and forms a rectangular shape.

Claim 11: As depicted in Figures 3 and 4 of Ardell, when the locking collar is engaged with the bolt shaft, excess sealant is squeezed out a second end of the bolt shaft via at least one groove 10 on a surface of the bolt shaft that opens to an outside at an axial end of the locking portion (which is at the top of the collar 9 in Figure 3).

Claim 12: As depicted in Figures 3, 6, and 7 of Ardell, the plurality of grooves 3 and 10 intersect with one another so that all of said plurality of grooves are interconnected and intercommunicated with each other, and wherein at least one (10) of said plurality of grooves extends to and opens at an open groove end at an axial end of said locking portion along an axial direction of the bolt shaft such that excess sealant is squeezed out the open groove.

Claim 13: As depicted in Figure 5 of Ardell, the locking portion is shown to include helical annular grooves 3a, rather than annular circumferential grooves.

Claims 15 and 16: Although not explicitly disclosed or depicted, it is inherent that the bolt shaft of Ardell included a break-away portion at the end thereof in the form of a constricted neck encircled by a circumferential groove. Upon swaging of the collar 9, the break-away portion of

Art Unit: 3726

the bolt shaft is broken off at the constricted neck portion. The resulting broken constricted neck portion can be seen clearly in each of Figures 1, 3, and 5.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ardell (U.S. Patent No. 3,139,786) in view of Wirtz et al. (DE 197 12 180 A1), as applied to claim 1 above, and further in view of King, Jr. (U.S. Patent No. 3,371,572).

Claim 6: Ardell fails to teach the plurality of grooves including a first group of spiral grooves that respectively extend in a clockwise spiral direction and a second group of spiral grooves that respectively extend in a counterclockwise spiral direction and intersect with said first group of spiral grooves.

King teaches a locking bolt 16 (see Figure 4) having a knurled pattern 24 including a first group of spiral grooves 25 that respectively extend in a clockwise spiral direction and a second group of spiral grooves 25 that respectively extend in a counterclockwise spiral direction and intersect with said first group of spiral grooves. The knurled pattern allows sealing compound to flow out of the joint along the spiral grooves during swaging of a collar to the locking bolt (see column 4, lines 56-70).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the grooves of Ardell as a series of intersecting spiral grooves, as taught by King, to provide a locking portion more resistant to relative rotation between the bolt shaft and the collar, while at the same time maintaining relief channels for the sealing compound.

Claim 8: As depicted in Figure 4 of King and disclosed in column 4, lines 65-67, the knurled pattern 24 forms a series of diamond shapes.

Art Unit: 3726

Response to Arguments

Applicant's arguments with respect to claims 1+ have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Bryant whose telephone number is (571) 272-4526. The examiner can normally be reached on Monday-Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (571) 272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3726

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David P. Bryant
Primary Examiner
Art Unit 3726

dpb
12/26/04